

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

(51) International Patent Classification <sup>6</sup> : G07F 19/00, G06F 17/60, G07F 7/10		A2	(11) International Publication Number: WO 98/30985
			(43) International Publication Date: 16 July 1998 (16.07.98)
(21) International Application Number: PCT/IL98/00005		(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 5 January 1998 (05.01.98)		Published Without international search report and to be republished upon receipt of that report.	
(30) Priority Data: 119965 6 January 1997 (06.01.97) IL			
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The diagram illustrates the flow of information and items in a credit card payment system. It features three main components: a **VENDOR SERVICES OR PRODUCTS** block, an **MDTI** (Master Data Transfer Interface) block, and a **CUSTOMER OR SHOPPER** block.

- Vendor Services or Products** (14) and **MDTI** (12) are connected by a bidirectional data path (29, 32).
- The **MDTI** (12) is connected to the **CUSTOMER OR SHOPPER** (13) via a series of vertical lines representing data channels.
- Data Flow from Vendor to MDTI:**
  - Line 18: **PRICE & TRANSFER INFO**
  - Line 17: **ORDERS**
  - Line 16: **INFORMATION RE PRODUCTS & SERVICES OFFERED**
- Data Flow from MDTI to Vendor:**
  - Line 36: **RECEIPT • VENDED ITEM**
- Data Flow from MDTI to Customer:**
  - Line 19: **MONEY DEP.**
  - Line 21: **DEP. MONEY**
  - Line 22: **ACCT. NO**
  - Line 20: **1ST PIN**
  - Line 23: **SPEC. SUM**
  - Line 24: **VERIFICATION**
  - Line 25: **2ND PIN**
- Customer to MDTI:**
  - Line 31: **2ND PIN**
- MDTI to Vendor:**
  - Line 11: **11**
- Customer to Vendor:**
  - Line 28: **28**

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## COMPUTERIZED MONEY TRANSFER SYSTEM

### Field of the Invention

This invention is concerned with Electronic Money Transfer Systems that can be used by people shopping on the Internet, for example, to provide efficient and secure money transfers for people "shopping" from any desired location.

### Background of the Invention

There are now available electronic shopping facilities, along with old well known shopping facilities such as catalogs where the customers can shop from their homes. The Internet is a fine example of such a shopping facility. On the Internet there are available products and information which are for sale and can be purchased by the operator of the computer in his home or from any desired location. A problem with all of these modes of shopping that do not require the personal presence of the customer at the location of the vendor supplying the information or product, is that there is no secure and efficient method of paying.

One presently available method of paying is to send a check by mail to the vending establishment, i.e. the vendor. However, payment by mail requires time until the check gets to the vendor by mail and is validated by the bank from which it is drawn. The time requirement cancels a main benefit for computer shopping. A faster way is for the customer to pay for the goods and services using a credit card. For use of the credit card the customer would have to provide the facility offering the goods and services with his credit card number. The lines between the customer and the supplier are open and easily "bugged." Also, the vendors may not be a legitimate operation. Accordingly, providing one's credit card number to unknown vendors or over open communication lines, such as telephone lines, puts at risk the credit card. Somebody detecting the credit card number can then use that number in a similar manner and illicitly order goods or services and charge it to the detected credit card.

In the prior art one of the ways of avoiding such misuse of the credit cards is through the use of special encrypted credit cards. A special reader is then necessary at the shopper's location, and a decoder is necessary at the vendor's location. Thus this method of avoiding fraudulent use of credit cards requires extra equipment, i.e. the credit card reader at the location of the shopper and the decoder at the vendor's location.

Accordingly, the problem of electronically transferring money between a shopper and a supplier remains acute, especially if such shopping is to be done over communication lines

such as the Internet and especially if the services encompass information such on-line data that are supplied immediately. A related problem is where the supplier fails to supply paid for information or goods. This invention is concerned with solving the problems and others which are associated with the supplying the home shopper with an efficient and secure means of  
5 paying the vendor for the goods and/or services desired by the shopper.

**Brief Description of the Invention**

As indicated above, it is becoming more and more common for people to order products and services from home such as by using their personal computer. The problem presently remains as to how to efficiently and securely pay for products and services that are  
10 purchased without the purchaser being at the vendor's premises. In a preferred embodiment the home shopping is accomplished using a computer. In purchases made through catalogs or by computer, payment is often made by credit card, the problem is that customers are aware of possible fraud when credit card numbers are given over telephone here and hence do not willingly give credit card number to suppliers.

15 The problem is overcome according to a preferred embodiment of the instant invention by opening an account at an institution that receives and transfers money, such as a bank or credit card company (hereinafter the "MDTI") as for example by establishing a line of credit or depositing money thereat. The money or credit is in an account credited to the shopper. The MDTI on opening the account or receiving the money then supplies a code number, such as a  
20 credit card number, along with a first personal identification number (PIN). Subsequently the shopper may notice an item or service on the Internet, for example, that the shopper would like to purchase. The shopper contacts the vendor to determine the price of the item or items. The shopper then notifies the MDTI, of his desire to make the purchase, specifying the specific sum that will be necessary for the purchase. He provides his account number along  
25 with his first PIN. When this is verified, the MDTI sets aside the requested sum of money, issues a second PIN and optionally issues confirmation that the money has been set aside. The shopper then preferably contacts the vendor, orders the items or services and provides the vendor with the second PIN. The vendor then contacts the MDTI, giving the amount of money to be transferred to it along with the second PIN and the account into which the money is to be  
30 transferred. Upon verification of the PIN, the money is transferred. The vendor obtains feedback from the MDTI verifying that the designated sum of money was transferred to the specific account. The vendor then fills the order.

The second PIN number in a preferred embodiment can be used only once. Ideally, the vendor supplies a receipt immediately when the money is transferred and the service or product purchased. Preferably all transfers of data are made between computers, therefor it is quite fast, in almost real time, so chances of theft or fraud of this money transfer is negligible.

5 Since the second PIN is for single time use, it is difficult to trace the second PIN to the user's account for fraudulent purposes. In addition, preferably, the second PIN is time limited. If it is not used within the limited time it is automatically canceled and the money is returned to the purchaser's main account.

There is thus provided, in accordance with a preferred embodiment of the invention, a  
10 system for electronically transferring money from a shopper's account located in a Money Deposit and Transfer Institution (MDTI) to a designated account belonging to a vendor, said system comprising:

a money designator which sets aside a specific sum of money or credit at the MDTI responsive to a request by the shopper to pay for purchases from a vendor,

15 a number generator at said MDTI which issues an account number and a first personal identification number (PIN) to said shopper, and a second PIN to the shopper to be supplied to the vendor;

a comparator in said MDTI comparing said issued second PIN and the second PIN supplied by the vendor to verify a requested transfer of the specific sum of money or credit to  
20 the vendor; and

a money transferor transferring the specific sum of money or credit to said vendor responsive to the verification of the second PIN number.

In a preferred embodiment of the invention the system includes a clock which sets a time limit for the validity of said second PIN and a money creditor which credits the specific  
25 sum of money to the shopper when the time limit has expired. Preferably, said time limit is dependent on the amount of the specific sum of money. Alternatively or additionally said time limit is dependent on the shopper's credit rating. Alternatively or additionally said time limit depends on a time limit requested by the shopper.

In a preferred embodiment of the invention the system comprises a second comparator  
30 which compares newly assigned PIN's to previously issued and still valid PIN's to assure that there is no duplication of the PIN's assigned to different shoppers.

Preferably, the number generator comprises a predetermined bank of numbers that are not associated with the specific sum.

Preferably, a money transferor transfers money from a shopper's account located in the Money Deposit and Transfer Institution to a designated account belonging to a vendor; and

5       said money transferor includes a prepared list of PIN's tested to assure that there is no duplication.

Preferably, the designated account belonging to the vendor is located in the Money Deposit and Transfer Institution which holds the shopper's account.

Preferably, the specific sum of money is also verified prior to transfer.

10       There is further provided, in accordance with a preferred embodiment of the invention, a method for electronically transferring money from a shopper's account located in a Money Deposit and Transfer Institution (MDTI) to a designated account belonging to a vendor, said method comprising:

issuing an account number and a first PIN to said shopper at said MDTI;

15       setting aside, at the MDTI, a specific amount of money for purchases from a vendor;

issuing a second PIN number to said shopper, by said MDTI, for use in transferring said specific sum of money;

verifying a requested transfer of the specific sum of money to the vendor responsive to the receipt of said second PIN number from said vendor; and

20       transferring the specific sum of money to the vendor responsive to the verification of the second PIN.

Preferably the method includes limiting the time during which the second PIN is valid. Preferably, the method includes returning the specific sum of money to the shopper's credit when the time limit has expired.

25       In a preferred embodiment of the invention, the shopper provides one or both of the first and second PIN numbers.

Alternatively the PIN numbers are selected using a random number generator.

In a preferred embodiment of the invention the method includes assuring that there is no duplication of the selected PIN's assigned to different shoppers. Preferably, assuring that  
30       there is no duplication of the selected PIN's includes comparing the new PIN's to previously issued and still valid PIN's.

Preferably, a designated account belonging to the vendor is located in the MDTI which holds the shopper's account.

Preferably, the money is electronically transferred from a shopper's account located in the MDTI to a designated account belonging to a vendor.

5 Preferably, the method verifying said specific amount of money prior to transfer as a condition for said transfer.

Preferably, the second PIN number is canceled after being used.

The above described and other features and benefits of the present invention will be best understood when considered in the light of the following description made in conjunction  
10 with accompanied drawing; wherein:

**A Brief Description of the Drawings:**

Figure 1 - is a diagrammatic showing of the relationship between the shopper's equipment (computer), the vendor's equipment and the Money Depositing and Transfer Institution's equipment during the electronic money transfer transaction;

15 Figure 2 - is a diagrammatic showing of a random number generator to randomly provide the first and second PIN numbers;

Figure 3 - schematically shows a comparator used to check the specified amount and second personal identification number for verification purposes and to avoid duplications;

Figure 4 - is a block diagram showing of the inventive money transfer system; and

20 Figure 5 - is a block diagram showing of more details of the blocks of Fig. 1.

**General Description**

Figure 1 shows the relationship between three components of an Electronic Money Transfer System (11). Thus, there is shown a block representing the equipment at the Money Depositing and Transfer Institution (12), a block representing the equipment of the shopper or  
25 customer (13) and a block representing the equipment at the service or product vendor (14). The product or service vendor (14) provides information on items or services as indicated by line 16 extending between the vendor (14) and the shopper (13). The shopper receiving such information on products or services then requests a price. There may be an interaction between the vendor and the customer establishing a price. Upon receiving the price  
30 information the shopper places an order with the vendor (14) and arranges with the Money Depositing and Transfer Institution (12), with which he is associated, to set aside money to

make the payment. The MDTI does so and supplies the shopper with a second PIN associated with the purchase price. The term money as used herein, of course, includes credit.

The relationship between the customer and the Money Depositing and Transfer Institution usually begins when the customer deposits money in the Money Depositing and Transfer Institution as indicated by line 19 between the customer (13) and the Institution (12) or when he establishes credit at Institution (12). Responsive to the deposit of money or the establishment of credit with the MDTI, the MDTI sends information to the customer, as indicated by line 21. The information includes an account number and a first personal identification number. The customer then has a relationship with the MDTI (12). Based on this relationship the customer can ask the Institution to transfer a specific sum of money to any specific account specified by the vendor (14), as indicated by line 22. An alternative method is to have the vendor registered with the MDTI whereby the transfer of money and validation are handled by the same MDTI.

Responsive to the request for setting aside the specific sum of money, the MDTI (12) sets aside the specific sum and generates a second PIN number preferably using the Number Generator (23) of Fig. 2, which in one preferred embodiment is a Random Number Generator. The Random Number Generator (23) operates responsive to notification of the first money deposit of the customer to generate a first PIN number as indicated by line 24. Then responsive to setting aside a specific sum of money, the Random Number Generator (23) generates a second PIN number as indicated by line 26. Another preferred method has the MDTI using lists of prepared non-consecutive numbers that have been checked to assure that there is no duplication. Another method is for the customer to specify the number.

The generated personal identification numbers are each subjected to a review by Comparator ((27) in Fig. 3) to assure that there is no duplication of the personal identification numbers. The comparator can also be used in the preparation of the lists of non-consecutive numbers. The second PIN is sent to the customer as indicated by line 28 in Fig. 1. The customer will then give the information on the MDTI (12) and on the second PIN to the vendor as is also indicated by line 18. The vendor (14) forwards a request for the payment amount, the second PIN and an account of its choosing to the MDTI, see line 29. Instructions are verified in the MDTI (12) using a comparator such as Comparator (27) in Fig. 3 which preferably compares both the requested specified amount and the second PIN number and if both numbers compare favorably then a verification signal is sent to the customer over line 31.



Alternatively only the second PIN needs to be verified. At the same time payment to the account chosen by the vendor is made as indicated by line 32 between the MDTI and the vendor. Along with the payment notification is made to the vendor that payment has been made. Responsive to the notification that payment has been made, a receipt is sent  
5 electronically to the customer and the vended item is sent to the customer as indicated by line 36 along with the receipt. The transaction is now finished. The interim verification to the customer over line 31 may be omitted. Preferably, if the second PIN is not used within the allocated time it is canceled.

A flow diagram is shown in flow diagram of Fig. 4. Preferably the steps for using the  
10 electronic secure money transfer system include the customer setting up an account with an Institution, as indicated by block 41. After setting up an original account and receiving a first PIN, the customer then goes shopping over the Internet, for example, as indicated in block 42. While shopping, if the customer finds something he wants (block 43), the customer then obtains price and payment information from the vendor as indicated in block 44. The  
15 customer then notifies the MDTI of the specific sum that he needs to pay for a purchase. Responsive to the receipt of such notification, including the amount of the payment, the MDTI issues a second PIN number, as indicated in block 46. The customer then notifies the vendor of the second PIN number and the amount of the payment (block 47). The vendor then notifies the MDTI ((12) of Fig. 1) of the second PIN number, the price and his account  
20 number, as indicated by block 48. The payment is made by the MDTI ((12) of Fig. 1) as also indicated by block 48 in Fig. 4. When the payment is verified (block 49) the vendor then delivers the goods to the customer as indicated in block 50.

Fig. 5 is a block diagram showing details of the diagram of Fig. 1. In Fig. 5 the Money Deposit and Transfer Institute 12 preferably includes at least the items shown. A computer  
25 (51) is shown, which generally controls the operation of the Money Deposit and Transfer Institution. The computer is preferably attached to the outside world via a modem (52) enabling it to be in direct contact with the vendors (14) and the shoppers (13). The computer (51) is equipped to have input means (53) such as a keyboard, whereby information, data and instructions can be input into the computer (51). Among the information put into the computer  
30 is information regarding the main accounts of customers which is shown as being held at memory (54). The customers also, from time to time, set up temporary accounts for making direct purchases such as a temporary account means shown at 56. Money is transferred

between the main accounts (54) and temporary accounts (56) by transfer means such as that shown at (57).

Also when the time period of a temporary account runs out, then the money in the temporary account is preferably transferred back to the customer's main account. The timer  
5 means for keeping track of the time limitation of the temporary accounts and the second PIN numbers is shown at 58.

In order to provide the PIN numbers, the computer is attached to a number generator shown at 59. The PIN numbers after being generated are preferably checked to make sure there is no duplication. The number checker is shown at 61. One preferred embodiment of a  
10 number checker is a comparator such as shown in Fig. 3. Therein the comparator preferably compares the newly generated number to the previously issued PIN numbers that are still valid. This is shown in Fig. 3 as a selected number being compared to a standard number in the comparator (27). If there is a lack of comparison then the verification signal is given and a number is usable. If the numbers are the same then the number is discarded. The verified  
15 numbers are listed as shown at the number block (62).

The MDTI transfers money from the temporary account to the vendor upon verification of the second PIN number as indicated by the transfer block 63. The modem (52) connects to shoppers and vendors through the telephone lines as indicated at block designated as telephone lines (64).

20 The equipment at the customer or shopper's location 13 is either a regular PC shown at (66) or it could be what is known as a "brainless" PC that through the use of JAVA like software utilizes the "brains" of the computer (51) of the MDTI indicated at 12.

The equipment also preferably includes a modem (67) for connecting the PC to the MDTI and to the vendor. An input device (68) works with the PC to enable the shopper to  
25 input information to PC for transfer either to a memory indicated at 69, to the vendor through the vendor's modem 76, or to the MDTI through the MDTI's modem 52.

The vendor's equipment (14) preferably includes a computer (71) and a graphics display means (72) or some other means for showing what is being sold by the vendor to the potential customers. Thus the goods can be directly shown using the graphics display means  
30 (72) or a description of information services can be provided using the display means (72).

The vendor's equipment also preferably includes record keeping equipment indicated at (73) to insure that a record is kept of the purchases and the second PIN numbers provided to

the vendor by the purchaser through the computers. The input means (74) is preferably provided to enable data, information and instruction to be input to computer (71). The computer (71) is connected to the world through its modem (76).

Thus, there is shown and described means and methods for shopping by computer and  
5 safely exchanging money electronically through the computer in an efficient manner.

While the invention described were referenced to a preferred embodiment it should not be interpreted as a limitation on the scope of the invention, which scope is defined by the appended claims.

Claims

1. A system for electronically transferring money from a shopper's account located in a Money Deposit and Transfer Institution (MDTI) to a designated account belonging to a vendor, said system comprising:
  - 5 a money designator which sets aside a specific sum of money at the MDTI responsive to a request by the shopper to pay for purchases from a vendor,
  - a number generator at said MDTI which issues an account number and a first personal identification number (PIN) to said shopper, and a second PIN to the shopper to be supplied to the vendor;
  - 10 a comparator in said MDTI comparing said issued second PIN and the second PIN supplied by the vendor to verify a requested transfer of the specific sum of money to the vendor; and
  - a money transferor transferring the specific sum of money to said vendor responsive to the verification of the second PIN number.
- 15 2. The system of claim 1 wherein money includes credit.
3. The system of claims 1 or 2, including:
  - a clock which sets a time limit for the validity of said second PIN; and
  - a money creditor which credits the specific sum of money to the shopper when the time limit has expired.
- 20 4. The system of claim 3 wherein said time limit is dependent on the amount of the specific sum of money.
5. The system of claim 3 or claim 4 wherein said time limit is dependent on the shopper's credit rating.
6. The system of any of claims 3-5 wherein said time limit depends on a time limit
- 25 requested by the shopper.
7. The system of any of the preceding claims, comprising:
  - a second comparator which compares newly assigned PIN's to previously issued and still valid PIN's to assure that there is no duplication of the PIN's assigned to different shoppers.

8. The systems of claim 1 or 2 wherein said number generator comprises a predetermined bank of numbers that are not associated with the specific sum.
9. The system of any of the preceding claims wherein a money transferor transfers money from a shopper's account located in the Money Deposit and Transfer Institution to a  
5 designated account belonging to a vendor; and  
said money transferor includes a prepared list of PIN's tested to assure that there is no duplication.
10. The system according to any of the preceding claims wherein the designated account  
10 belonging to the vendor is located in the Money Deposit and Transfer Institution which holds the shopper's account.
11. The system according to any of the preceding claims wherein said specific sum of money is also verified prior to transfer.
12. A method for electronically transferring money from a shopper's account located in a Money Deposit and Transfer Institution (MDTI) to a designated account belonging to a  
15 vendor, said method comprising:  
issuing an account number and a first PIN to said shopper at said MDTI;  
setting aside, at the MDTI, a specific amount of money for purchases from a vendor;  
issuing a second PIN number to said shopper, by said MDTI, for use in transferring  
said specific sum of money;  
20 verifying a requested transfer of the specific sum of money to the vendor responsive to the receipt of said second PIN number from said vendor; and  
transferring the specific sum of money to the vendor responsive to the verification of the second PIN.
13. The method of claim 12, including:  
25 limiting the time during which the second PIN is valid.
14. The method of claim 13 including returning the specific sum of money to the shopper's credit when the time limit has expired.
15. The method of any of claims 12-14 where the user provides the first PIN number.
16. The method of any of claims 12-15 where the user provides the second PIN number.

17. The method of any of claims 12-14, including:  
selecting the PIN's using a random number generator.
18. The method of claim 17, including:  
assuring that there is no duplication of the selected PIN's assigned to different  
5 shoppers.
19. The method of claim 18 wherein assuring that there is no duplication of the selected  
PIN's includes comparing the new PIN's to previously issued and still valid PIN's.
20. The method of any of claims 12-19 wherein a designated account belonging to the  
vendor is located in the MDTI which holds the shopper's account.
- 10 21. The method of any of claims 12-20 wherein the money is electronically transferred  
from a shopper's account located in the MDTI to a designated account belonging to a vendor.
22. The method of any of claims 12-21 and also verifying said specific amount of money  
prior to transfer as a condition for said transfer.

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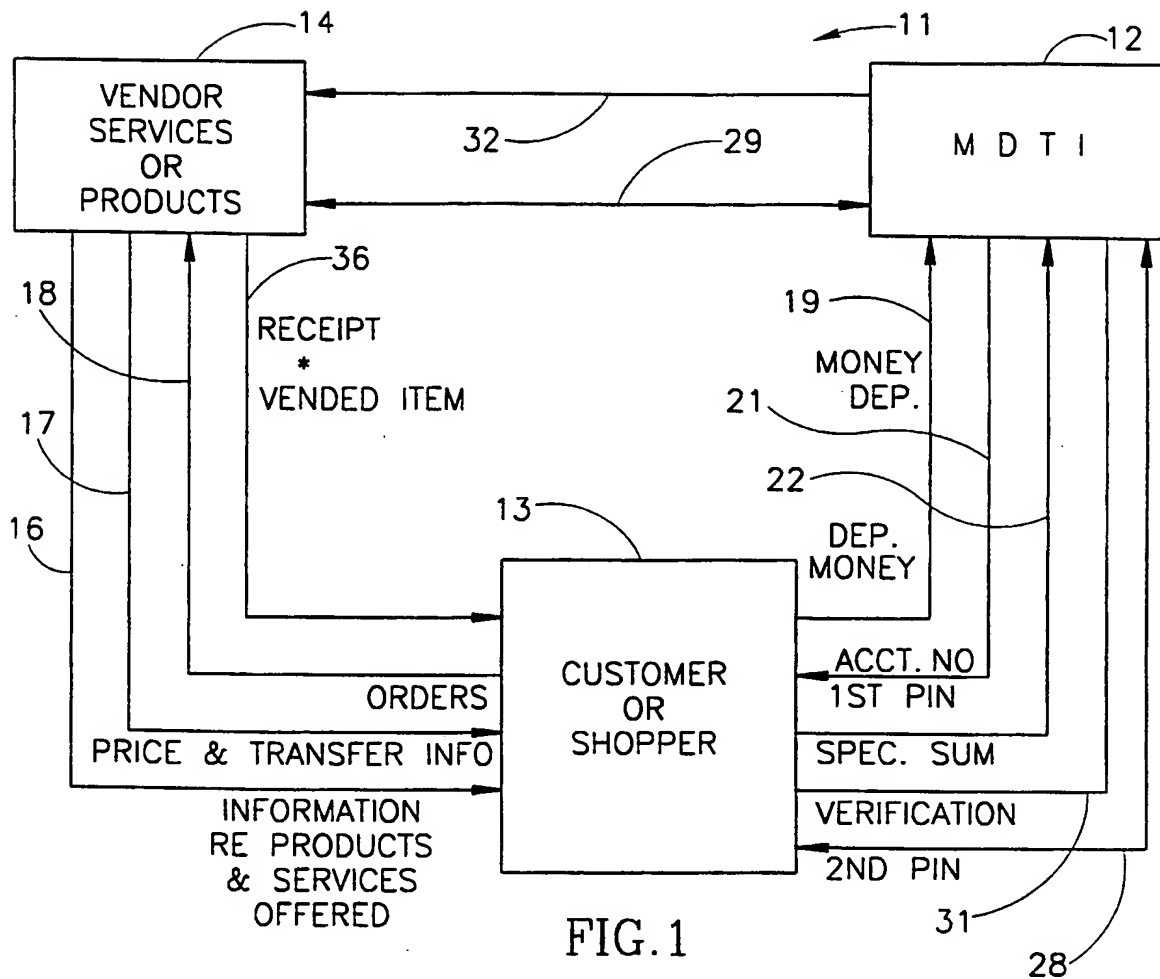


FIG. 1

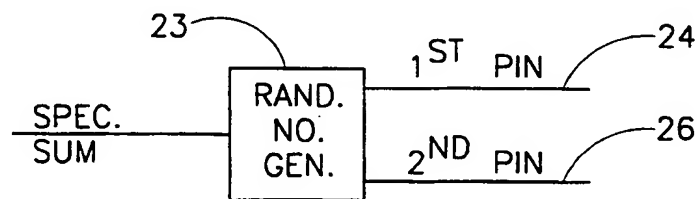


FIG. 2

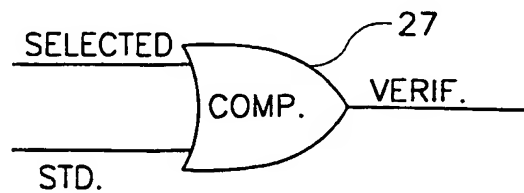
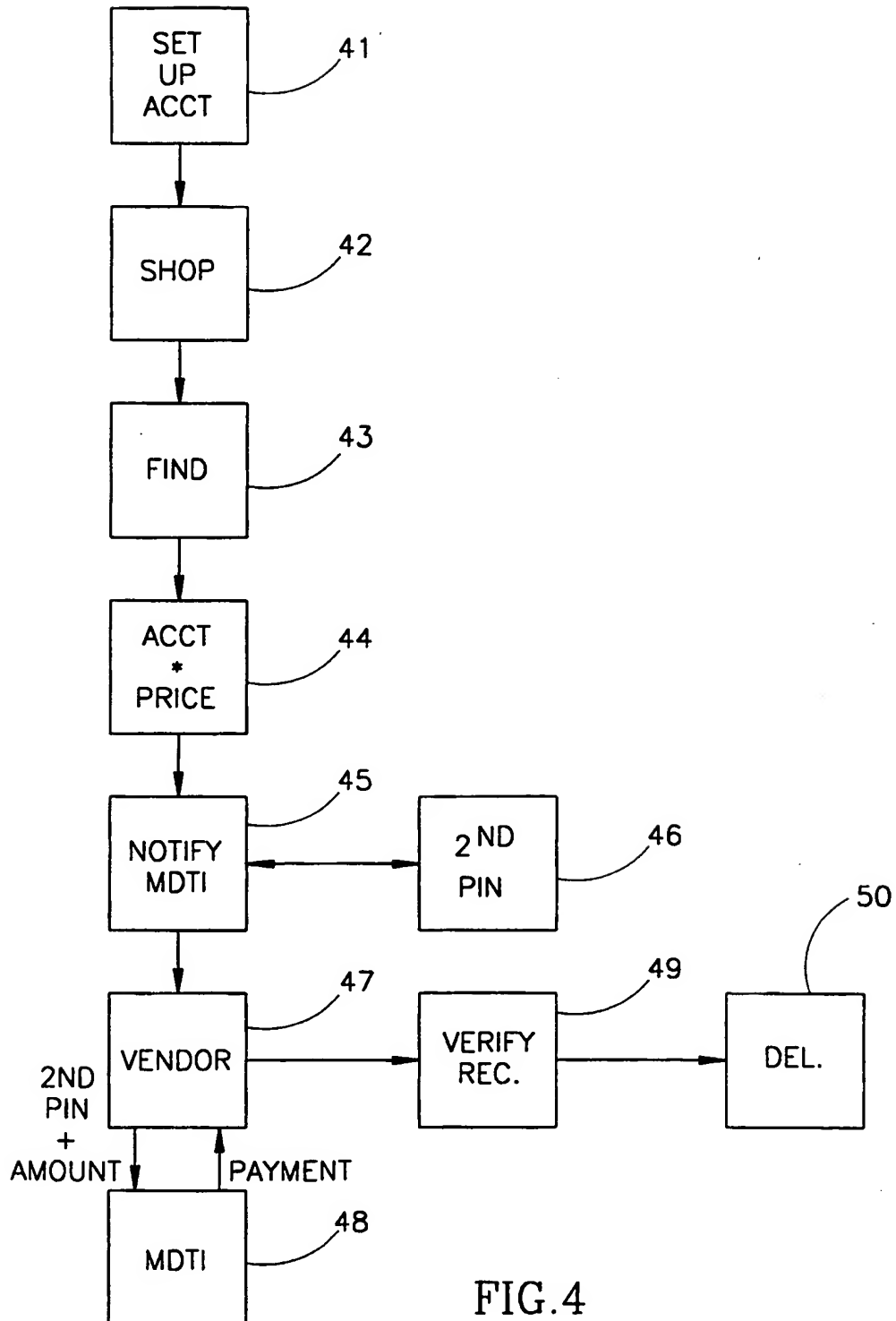


FIG. 3

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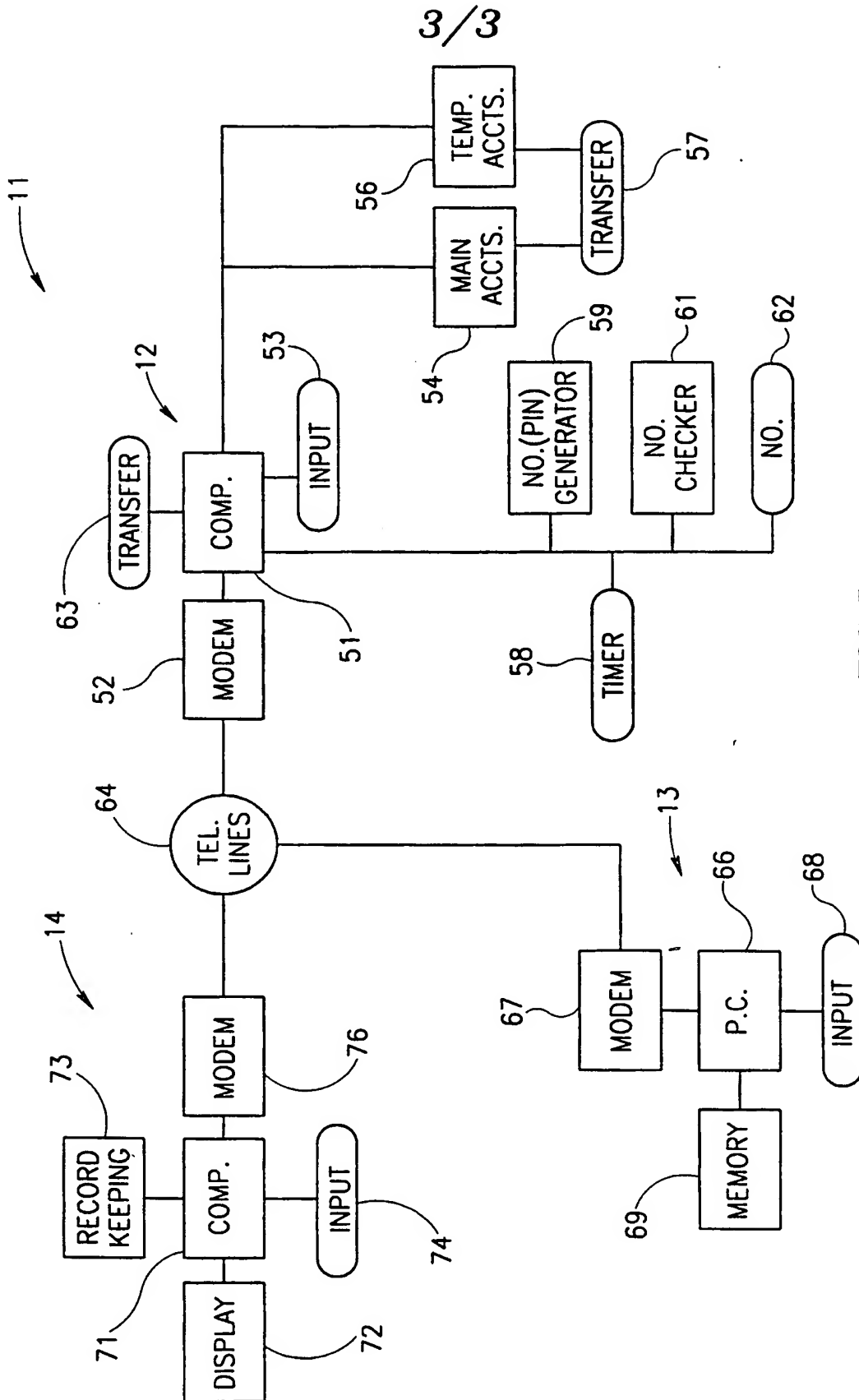


FIG. 5